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Translation of selected passages from JP-A-095955/2000 (P2000-95955A)

Page 1, Abstract:

【Abstract】

【Object】 To provide a novel water-absorbing composition which is more excellent in respect to each of the water absorption rate, the gel layer permeation rate, the gel layer permeation rate under load, and the absorption capacity under load than each resin alone, and which can exhibit excellent absorption properties even if the weight % of water-absorbent resin (resin concentration) is set high when the water-absorbing composition is used for such as sanitary materials.

【Means for Solution】 The above-mentioned object can be achieved by a water-absorbing composition which at least comprises anionic-dissociating-group-containing water-absorbent resin particles and cationic-group-containing water-swellable resin particles and is characterized in that: 45 to 90 mol % of the anionic dissociating groups of the water-absorbent resin particles are neutralized; α which is a weight ratio of the anionic-dissociating-group-containing water-absorbent resin particles to the total weight of the anionic-dissociating-group-containing water-absorbent resin particles and the cationic-group-containing water-swellable resin particles is at least 0.8; and P which is an absorption capacity of the water-absorbing composition under load is at least 20 g/g.

Page 2, column 1, line 1 to column 2, line 7 (Claims):

【Claims】

【Claim 1】 A water-absorbing composition, which at least comprises anionic-dissociating-group-containing water-absorbent resin particles and cationic-group-containing water-swellable resin particles, with the water-absorbing composition being characterized in that: 45 to 90 mol % of the anionic dissociating

groups of the water-absorbent resin particles are neutralized; α which is a weight ratio of the anionic-dissociating-group-containing water-absorbent resin particles to the total weight of the anionic-dissociating-group-containing water-absorbent resin particles and the cationic-group-containing water-swellable resin particles is at least 0.8; and P which is an absorption capacity of the water-absorbing composition under load is at least 20 g/g.

【Claim 2】 A water-absorbing composition according to claim 1, wherein P1 which is an absorption capacity of the anionic-dissociating-group-containing water-absorbent resin particles under load is at least 20 g/g, and wherein P2 which is an absorption capacity of the cationic-group-containing water-swellable resin particles under load is at least 3 g/g.

【Claim 3】 A water-absorbing composition according to claim 1 or 2, wherein the anionic-dissociating-group-containing water-absorbent resin particles are crosslinked poly(acrylate salt) particles.

【Claim 4】 A water-absorbing composition according to any one of claims 1 to 3, wherein the cationic-group-containing water-swellable resin particles are crosslinked polyethylenimine particles which are free of surface-active agent and approximately spherical.

【Claim 5】 A water-absorbing composition according to any one of claims 1 to 4, wherein the surface vicinity of the anionic-dissociating-group-containing water-absorbent resin particles is treated by crosslinking.

【 Claim 6 】 A water-absorbing composition, which at least comprises anionic-dissociating-group-containing water-absorbent resin particles and cationic-group-containing water-swellable resin particles, with the water-absorbing composition being characterized in that: 45 to 90 mol % of the anionic dissociating groups of the water-absorbent resin particles are neutralized; α which is a weight ratio of the anionic-dissociating-group-containing water-absorbent resin particles to the total

weight of the anionic-dissociating-group-containing water-absorbent resin particles and the cationic-group-containing water-swellable resin particles is at least 0.8; and P which is an absorption capacity of the water-absorbing composition under load satisfies $P > P1\alpha + P2(1 - \alpha)$ (wherein: α is a weight ratio of the anionic-dissociating-group-containing water-absorbent resin particles to the total weight of the anionic-dissociating-group-containing water-absorbent resin particles and the cationic-group-containing water-swellable resin particles; P1 is an absorption capacity of the anionic-dissociating-group-containing water-absorbent resin particles under load; and P2 is an absorption capacity of the cationic-group-containing water-swellable resin particles under load).

【Claim 7】 A water-absorbing composition according to claim 6, wherein the value of P1 which is an absorption capacity of the anionic-dissociating-group-containing water-absorbent resin particles under load is at least 20 g/g, and wherein P2 which is an absorption capacity of the cationic-group-containing water-swellable resin particles under load is at least 1 g/g.

【Claim 8】 A water-absorbing composition according to claim 6 or 7, wherein the anionic-dissociating-group-containing water-absorbent resin particles are crosslinked poly(acrylate salt) particles.

【Claim 9】 A water-absorbing composition according to any one of claims 6 to 8, wherein the cationic-group-containing water-swellable resin particles are crosslinked polyethylenimine particles which are free of surface-active agent and approximately spherical.

【Claim 10】 A water-absorbing composition according to any one of claims 6 to 9, wherein the surface vicinity of the anionic-dissociating-group-containing water-absorbent resin particles is treated by crosslinking.

Page 9, column 16, line 14 to page 10, column 17, line 16 (Examples 1 to 7):

(Example 1) A water-absorbing composition (1) according to the present invention was obtained by mixing 90 parts of the anionic-dissociating-group-containing water-absorbent resin particles (1), as obtained in Referential Example 1, and 10 parts of the cationic-group-containing water-swellable resin particles (1), as obtained in Referential Example 4, in a state of powders together. The water-absorbing composition (1) was such that the absorption capacity without load, the absorption capacity under load P, the water absorption rate, the gel layer permeation rate, and the gel layer permeation rate under load were 28.1 g/g, 25.4 g/g, 111 seconds, 5.4 ml/second, and 138 seconds respectively.

(Example 2) A water-absorbing composition (2) according to the present invention was obtained by mixing 95 parts of the anionic-dissociating-group-containing water-absorbent resin particles (1), as obtained in Referential Example 1, and 5 parts of the cationic-group-containing water-swellable resin particles (1), as obtained in Referential Example 4, in a state of powders together. The water-absorbing composition (2) was such that the absorption capacity without load, the absorption capacity under load P, the water absorption rate, the gel layer permeation rate, and the gel layer permeation rate under load were 28.9 g/g, 26.2 g/g, 120 seconds, 4.2 ml/second, and 119 seconds respectively.

(Example 3) A water-absorbing composition (3) according to the present invention was obtained by mixing 85 parts of the anionic-dissociating-group-containing water-absorbent resin particles (1), as obtained in Referential Example 1, and 15 parts of the cationic-group-containing water-swellable resin particles (1), as obtained in Referential Example 4, in a state of powders together. The water-absorbing composition (3) was such that the absorption capacity without load, the absorption capacity under load P, the water absorption rate, the gel layer permeation rate, and the gel layer permeation rate under load were 28.0 g/g, 24.2 g/g, 115 seconds, 4.3 ml/second, and 128 seconds respectively.

(Example 4) A water-absorbing composition (4) according to the present invention was obtained by mixing 90 parts of the anionic-dissociating-group-containing water-absorbent resin particles (3), as obtained in Referential Example 3, and 10 parts of the cationic-group-containing water-swellable resin particles (1), as obtained in Referential Example 4, in a state of powders together. The water-absorbing composition (3) was such that the absorption capacity without load, the absorption capacity under load P, the water absorption rate, and the gel layer permeation rate were 33.5 g/g, 25.0 g/g, 33 seconds, and 3.5 ml/second respectively.

(Example 5) A water-absorbing composition (5) according to the present invention was obtained by mixing 90 parts of the anionic-dissociating-group-containing water-absorbent resin particles (1), as obtained in Referential Example 1, and 10 parts of the cationic-group-containing water-swellable resin particles (2), as obtained in Referential Example 5, in a state of powders together. The water-absorbing composition (5) was such that the absorption capacity without load, the absorption capacity under load P, the water absorption rate, and the gel layer permeation rate were 28.1 g/g, 23.3 g/g, 138 seconds, and 3.7 ml/second respectively.

(Example 6) A water-absorbing composition (6) according to the present invention was obtained by mixing 80 parts of the carboxyl-group-containing crosslinked water-absorbent polymer particles (C), as obtained as a precursor in Referential Example 6, and 20 parts of the cationic-group-containing water-swellable resin particles (1), as obtained in Referential Example 4, in a state of powders together. The water-absorbing composition (6) was such that the absorption capacity without load, the absorption capacity under load P, the water absorption rate, and the gel layer permeation rate under load were 22.5 g/g, 19.5 g/g, 148 seconds, and 59 seconds respectively.

(Example 7) A water-absorbing composition (7) according to the present invention was obtained by mixing 80 parts of the anionic-dissociating-group-containing water-absorbent resin particles (4), as obtained in Referential Example 6, and 20 parts

of the cationic-group-containing water-swellable resin particles (1), as obtained in Referential Example 4, in a state of powders together. The water-absorbing composition (6) was such that the absorption capacity without load, the absorption capacity under load P, the water absorption rate, and the gel layer permeation rate under load were 21.3 g/g, 19.7 g/g, 158 seconds, and 11 seconds respectively.